

STATUS OF THE WATER SECTOR

This review examines U.S. reconstruction projects intended to increase Iraqi citizens' access to clean water and sewerage services. Generally, U.S. efforts in this sector have focused on large-scale projects, but SIGIR notes a recent trend toward smaller projects that will yield quicker benefits. Over the past two years, more than half of the IRRF funding for the Water sector has been shifted to other sectors, reducing this sector's allocation from \$4.33 billion to the current \$2.13 billion. Figure 2-14 shows the locations of completed and ongoing projects in the Water sector.

IRRF-funded Activities in the Water Sector

Of the projects planned for this sector, 61% have been completed. But the rate of completion of the ongoing projects appears to be

slowing, and 16% of the planned projects have not yet started. The problem of the slowing completion rate in this sector could be offset by rapidly initiating projects that have not yet started and by accelerating work on ongoing projects. Figure 2-15 shows the status of projects in the Water sector.

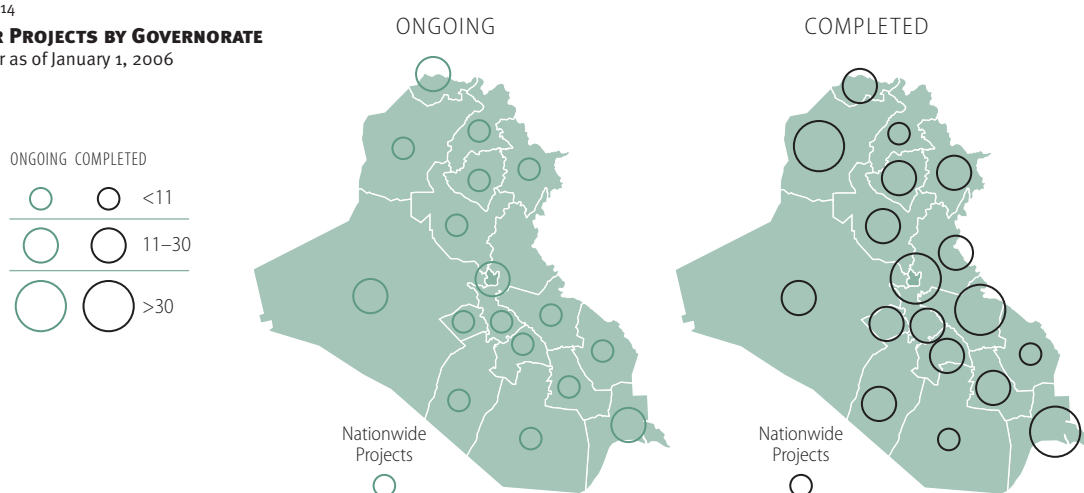
Last quarter, \$295 million was expended in the Water sector. However, SIGIR expects that the rate of expenditure should rapidly increase in the coming months as projects shift from the design phase to the build phase.⁵⁰

The \$2.1 billion in U.S. funding in the Water sector primarily has funded large-scale projects. In 2003 and early 2004, USAID and PCO awarded five contracts that represented the majority of IRRF dollars obligated in this sector. The contracts went to a small number of firms, including a USAID contract to Bechtel

Figure 2-14

WATER PROJECTS BY GOVERNORATE

Number as of January 1, 2006



STATUS OF WATER SECTOR

AS OF DECEMBER 31, 2005

Figure 2-15

STATUS OF WATER PROJECTS

Number of Projects

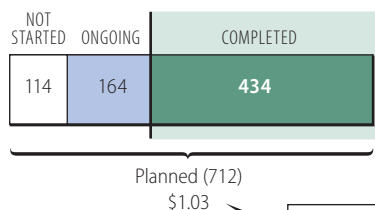


Figure 2-16

STATUS OF WATER FUNDS

\$ Billions

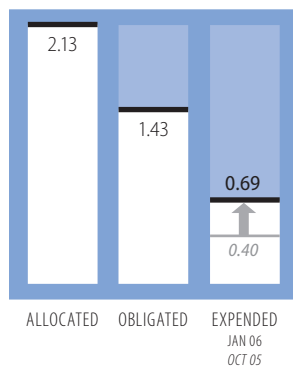
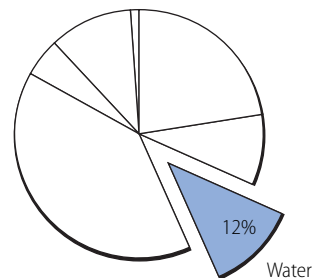


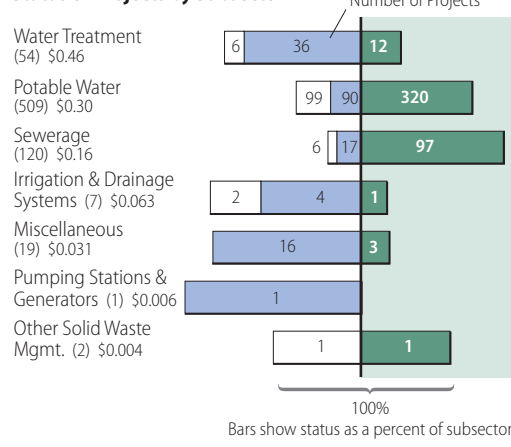
Figure 2-17

WATER AS A SHARE OF IRRF FUNDS

% of \$18.439 Billion



Status of Projects by Subsector



for work across multiple sectors in April 2003. In January 2004, Bechtel was awarded a second, competitively bid, multi-sector reconstruction contract. And in March 2004, two different competitively bid PCO contracts were awarded for Water sector reconstruction. Both contracts went to joint ventures—one between Washington Group International and Black & Veatch, and another between Fluor and AMEC.⁵¹

During the past quarter, the U.S. government continued emphasizing smaller-scale,

quick-impact projects. GRD-PCO's Small Scale Potable Water Program has funded nearly 150 projects throughout Iraq, with an average value of \$270,000 per project. The program used more than \$40 million in funding to directly contract local Iraqi firms.⁵² USAID has funded 296 small-scale projects in the Water sector, with an average value of \$47,000. The Commander's Emergency Response Program (CERP) and Commanders Humanitarian Relief and Reconstruction Program (CHRRP) funding streams, in addition to the IRRF

allocations, have obligated \$56 million and \$74 million, respectively, toward Water sector projects.⁵³ Figure 2-16 shows the status of Water sector funding.

KEY PROJECTS COMPLETED AND UNDERWAY

In November 2005, the Special Inspector General visited the *Erbil Water Treatment Plant*, a project that began in June 2004 and was 76% complete, as of late December 2005. The IG was impressed by the quality of work at the site but was concerned about cost overruns that occurred because of subcontractor shortfalls. The project was estimated to be complete by late April 2006, but an insurgent attack in December 2005 on a 16-truck convoy may cause a delay. Plans are underway to maintain the project timeline, and 12 of the trucks have been recovered.⁵⁴ SIGIR personnel previously completed several on-site water project inspections, including assessments of two water treatment plants in Baghdad, with mixed results. The results of those site visits are in the SIGIR July 30, 2005 Quarterly Report.

According to GRD-PCO, cost increases and schedule delays have caused the deferral of a number of Water sector projects. Design work is being completed for these projects, and will potentially be funded by Iraq or international donors at a later date.⁵⁵ Although only 25 projects were completed this quarter, others made substantial progress during the last quarter. Two projects were recently completed at the *Sweetwater Canal*, a man-made canal that runs slightly west of Basrah. The projects will ensure

water quality and reliability for many years.⁵⁶ More than two million residents of the Basrah area rely on the nearly 150-mile-long canal to supply water for cleaning, cooking, and bathing.

During the past quarter, the *Nassriya Water Treatment Plant* progressed from 45% to 53% of completion. The project, which began in August 2004 and will benefit 550,000 people, is estimated to be completed in June 2006.⁵⁷ Sustainment efforts continue on Baghdad's first major sewerage plant renovations in more than 12 years—*Kerkh and Rustimiyah North and South*—which were completed on June 20, 2005. These plants together serve 80% of Baghdad.⁵⁸

ORIGINAL FUNDING FOR SECTOR CUT IN HALF

The World Bank estimated in 2003 that \$6.8 billion would be required to restore the sector in the short- and medium-term.⁵⁹ U.S. funding has laid substantial groundwork for the long-term reconstruction effort that Iraq must execute to bring its water infrastructure up to modern standards.⁶⁰ CPA originally requested \$3.71 billion to reconstruct the Water sector in Iraq.⁶¹ U.S. allocations exceeded this request in November 2003; Congress allocated \$4.33 billion through the IRRF for the Water sector. In October 2004, allocations for the sector were reduced to \$2.31 billion when funding was shifted to security, oil, and economic development.⁶² Water sector allocations continued to be shifted to other sectors and are now reduced to \$2.13 billion. Figure 2-17 shows the current

level of funding in the Water sector—less than half of its original allocation.⁶³

Outputs of IRRF-funded Projects

Although the United States has successfully met CPA goals for sewerage projects, water project outputs have fallen well short of the 2003 goals. GAO previously reported that better performance measures and indicators are needed in the Water sector to help evaluate U.S. reconstruction efforts.⁶⁴

Table 2-5 compares the status of current water project outputs relative to CPA goals.

A USAID audit published in June 2005 found that USAID Water sector projects were achieving their intended outputs.⁶⁸ But if individual projects are achieving their intended outputs, then the shortfall revealed by this

chart could be explained by the low project completion rate. IRMO should examine the possibility of accelerating project starts.

Outcomes

From 1991 to 2003, access to safe drinking water in Iraq decreased. Before 1991, 95% of urban Iraqis and 75% of rural Iraqis had access to clean water, according to a needs assessment conducted by the United Nations (UN) and World Bank. By 2003, these figures had declined to 60% in urban areas and 50% in rural areas. Sanitation services reported similar decreases during this time period. Before 1991, sanitation services reached 75% and 40% of urban and rural Iraqis, respectively. By 2003, nearly 80% of Baghdad had sanitation access, but power outages caused shutdowns and blockages so severe that sewage backed up into

CURRENT WATER PROJECT OUTPUTS VS. CPA GOALS

OUTPUT METRIC	PRE-WAR LEVEL (2003)	STATED GOAL BY CPA (2003)	END-STATE GOAL AFTER DEFERRAL ⁶⁵	CURRENT STATUS AS OF 11/30/05
Water—People with Potable Water Availability	12.9 million	23.4 million	12.85 million	8.25 million 2.75 million added*
Sewerage—People with Sewerage System Coverage	6.2 million	2.5 million ⁶⁶	5.6 million	5 million 4.5 million added*
Water Treatment Capacity	3 million m ³ /day	10 million m ³ /day ⁶⁷	2.25 million m ³ /day	1.1 million m ³ /day

*Outputs include total added since war and include IRRF and other funding streams

Sources:

Pre-war level: Department of Defense Working Paper on Iraq Status, November 2003; USAID Water Accomplishments, 2005. Goals: Coalition Provisional Authority FY 2004 Supplemental Request to Rehabilitate and Reconstruct Iraq, September 2003; UN/World Bank Iraq Needs Assessment, 2003.

Current Status and End-state: Department of State Reconstruction Progress in Iraq – Briefing by U.S. Embassy Baghdad, November 30, 2005.

TABLE 2-5

PERCENT OF IRAQI POPULATION WITH ACCESS TO POTABLE WATER

BENEFIT METRIC	PRE-WAR LEVEL (2003)	STATED GOAL BY CPA (2003)	END-STATE GOAL AFTER DEFERRAL ⁷³	CURRENT AS OF 11/30/05
Potable Water Access	50%	90% of population	49%	32%
Sewerage Access	24% (countrywide)	15% of urban population	22%	19%

Sources:

Pre-war level: Department of Defense Working Paper on Iraq Status, November 2003.

Goals: Coalition Provisional Authority FY 2004 Supplemental Request to Rehabilitate and Reconstruct Iraq, September 2003.

Current Status and End-state: Department of State Reconstruction Progress in Iraq – Briefing by U.S. Embassy Baghdad, November 30, 2005.

TABLE 2-6

the streets. In other urban areas, only 9% of the population had sewerage access, and there were no sewage pipes to rural areas of Iraq. The decreases in water and sewerage capability were in large part due to human and physical capital constraints (staff, funding, equipment, and spare parts).⁶⁹

In 2003, Operation Iraqi Freedom largely spared water and wastewater treatment plants, but water treatment facilities were only operating at 35% capacity and wastewater treatment facilities at 25%, according to USAID.⁷⁰ Severe damage to the water distribution network had a significant impact on the Iraqi populace. In particular, Baghdad's water network suffered severe bomb damage that led to illegal tapping of the water supply.⁷¹ Water problems were estimated to affect about 12.5 million people in Iraq.⁷²

Currently, the status of the Water sector in Iraq is improving, but it is still in poor condition. Only 32% of Iraqis have access to potable water, and only 19% have sewerage access. The goals originally established for this sector were to increase potable water access to 90% of the population and sewerage access to 15% of the urban population (16.9 million people).

Table 2-6 summarizes data on Iraqi access to water relative to the original goals stated by the CPA.

Challenges

Three major issues confront the Water sector: sustainability, security, and program management.

SUSTAINMENT

SIGIR continues to be concerned about the sustainability of Water sector projects. A recent GAO report underscores the problem. Of the \$200 million in completed Water sector projects that GAO reviewed, more than a quarter were not operating at all or were operating at lower capacity than expected. Several reasons were cited for these shortfalls, including theft of key equipment, unreliable power supply, insufficient spare parts and chemicals, and a shortage of adequate Iraqi staff to sustain projects.⁷⁴

In March 2005, USAID was allocated \$25 million to support O&M and logistics for one year.⁷⁵ With this money, USAID implemented the Water Sector Institutional Strengthening

Project, which provides on-site job direction to more than 1,000 Iraqi workers. And in March 2005, PCO provided \$10 million to a major contractor for a 12-month training initiative in capacity development.⁷⁶ A major factor in sustainability, capacity development is defined in PCO's area of work as "the strengthening of human and institutional capabilities to support a society in its development of a more secure and sustainable economy, government, and infrastructure."⁷⁷ PCO also began using a formal risk matrix to evaluate the potential risk of failure for strategic and high-cost projects after hand-over to Iraqis.⁷⁸ GRD-PCO is also reworking its 2004 Capacity Development Plan for release soon. The main purpose of the plan is to lay out the basic roles and responsibilities for the sustainability of all agencies working in Iraq. The plan will also identify coordination and assessment mechanisms.⁷⁹

Most recently, DoS set aside \$110 million for sustainment in the Water sector.⁸⁰ Despite the increase in funding during the past few quarters, a SIGIR audit estimates that sustainment for the sector will cost \$235 million for 2006-2007.⁸¹

SECURITY

The security concerns endemic to all sectors have had a significant impact on the Water sector. Last quarter, a key water main in Baghdad was sabotaged, leaving more than two million residents without drinking water according to government sources. A month later, a mortar attack led to the temporary closure of one of

the main water purification plants. The closure affected more than three million Iraqis and, combined with the previous incident, led to demonstrations in Baghdad. Entire projects or components of projects must be cancelled to offset these increased security costs. Projects that are not cancelled are often severely delayed. For example, work on a sewer repair project was suspended for more than 100 days in 2004 because of security concerns. Another project on a wastewater plant was delayed for two months in early 2005 because insurgent threats drove away civilian contractors.⁸²

PROGRAM MANAGEMENT

Program management issues have also had an impact on the effectiveness of U.S. efforts in the Water sector. Original CPA budget estimates assumed that operating conditions would be more benign. In general, PCO found that those estimates were 25-50% below actual costs.⁸³ Funding shifts allowed for far less U.S. allocations, and underestimated costs and funding delays became an enormous issue for this sector. The management challenges do not stop there: Finalizing the terms of contracts and actually executing projects have been a problem. In 2005, a senior GAO official reported that "U.S. agency and contractor officials have cited difficulties in initially defining project scope, schedule, and cost, as well as concerns with project execution, as further impeding progress and increasing program costs."⁸⁴